UTS UNIVERSITY OF TECHNOLOGY SYDNEY

Continuous Transformation of Government Agencies in the Digital Era: A Technological and Non-Technological Assessment

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This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution.

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Views expressed in this research are those of the authors and not necessarily those of the FSO, interviewees or the interviewee's organisations. Use of any results from this research should clearly attribute the work to the authors and not to the FSO, interviewees and the interviewee's organisations.

Publications

The following are the researcher's published or under review publications related to this research:

Table 1- Researcher's Publications

Ref	***Subject***	***Publication***	***Reference***	***Status***
1	Continuous Transformation of Public Sector Organisations in the Digital Era	The American Conference in Information Systems (AMCIS)	(Faro, Abedin & Kozanoglu 2019)	Published
2	Hybrid Organisational Forms in Public Sector's Digital Transformation: A Technology Enactment Approach	Journal of Enterprise Information Management	(Faro, Abedin & Kozanoglu 2021)	Under Review

Abbreviations

AR: Action Research

ADR: Action Design Research

CTM: Continuous Transformation Model

D-ADR: Dialogical Action Design Research

DS: Design Science

EV-ADR: Expert Verified Action Design Research

FSO: The case study, a public sector Financial Services Organisation in Australia

IDP: Industry Doctorate Program at UTS

IS: Information System

IT: Information technology

PSO: Public sector Organisation

UTS: University of Technology Sydney

Key Terms

D-ADR: It is a combination of dialogical action research which focuses on conversations in action research as the mean for intervention (Yang et al. 2017), and design science (Lee 2007) making the research method Dialogical Action Design Research (D-ADR). This approach is similar to the work completed by Mårtensson & Lee (2004). However, to the researcher's knowledge, it is the first time that the D-ADR method is used in the context of public sector organisations by an employee of the organisation. This research refers to D-ADR simply as ADR, as it is a subset of ADR.

Digitisation: is "the encoding of analogue information into the digital format" (Warner & Wäger 2019). Some examples of digitisation are scanned documents (e.g. banking customer data) and archived asset, basic data entry systems, or a static website. Mergel et al. (2018) draw a difference between digitisation and digital transformation in the public sector. Similarly, Janowski (2015) differentiates between digitisation and digital transformation and defines digitisation as the use of technologies to move away from analogue processes. Digitisation, in the context of public sector, is defined as a means to increase the efficiency and effectiveness of government services (2018). However, this definition is closer to digitalisation definition.

Digitalisation: is 'use of technology for the operational excellence and business efficiency' (Reis et al. 2018, p. 418). Digitalisation creates potent digital affordances that likely have a transformative effect upon the organisation" (Autio et al. 2018). Some examples of digitisations are the use of systems such as library systems, financial transaction systems, enterprise resource planning and customer relationship management systems (Sebastian et al. 2017).

Digital transformation: this research indicates that there is no agreed definition for digital transformation in the academic literature and certainly not in the context of public sector organisations. However, there appears to be a growing consensus that digitisation (e.g. analogue camera to digital camera) is different to digitalisation and digital transformation (Ross, Sebastian & Beath 2017). Digital transformation is defined as a "*holistic business transformation enabled by information systems resulting in economic and technological change at both organisation and industry level*" (Chanias, Myers & Hess 2018). Digital transformation is "the combined effects of

several digital innovations bringing about novel actors, structures, practices, values, and beliefs that change, threaten, replace or complement existing rules of the game within organisations, ecosystems, industries or fields" (Hinings, Gegenhuber & Greenwood 2018). It is "an ongoing process of strategic renewal that uses advances in digital technologies to build capabilities that refresh or replace an organisation's business model, collaborative approach, and culture" (Warner & Wäger 2019).

Continuous Digital Transformation: this research's proposition is that digital transformation is an on-going process. Based on reviewed expert interviews and literature (Carcary, Doherty & Conway 2016; Hinings, Gegenhuber & Greenwood 2018; Nadeem et al. 2018; Reis et al. 2018; Sebastian et al. 2017; Sia, Soh & Weill 2016; Warner & Wäger 2019), this study defines it as a continuous process to strategically renew business model (including changes to products, service offerings and processes), organisational form, digital technologies, leadership and skills to navigate the dynamic digital landscape.

Digital Innovation: Digital innovation is a coordinated activity of creating new processes, services, products, platforms and business models using digital technologies (Hinings, Gegenhuber & Greenwood 2018). Kohli & Melville (2018) discuss that internal and external organisational environments drive digital innovation, which requires creating new products, services and processes by using and integrating technologies.

Digital Transformation Strategy (DTS): digital transformation strategy is an artefact for coordination, prioritisation, implementation and governance of the required digital enablers capabilities Chanias, Myers & Hess (2018). Digital transformation strategy is updated often to prepare the organisation for new disruptions and changes to business directions and priorities. Research shows that DTS enables an organisation to understand the required capabilities for a successful transformation journey in the digital era (Chanias, Myers & Hess 2018).

Digital Organisation: is the result of a fusion of business and technology to a state that it is difficult to separate them. There are two types of organisations that result in digital organisations:

- Digital-born organisations tend to base their business on information technology and its practices from their birth (beyond digitisation, digitalisation, e-commerce). Such

organisations have the ability to disrupt multiple industries with dynamic business boundaries enabled by digital organisational and technological capabilities. Google, Facebook, Twitter, Uber and Airbnb are some prominent examples.

- Pre-Digital organisations that re-define their purpose as if they were reborn in the digital era. Netflix and Amazon are some prominent e-commerce examples. Car manufacturers, the space sector and financial services sector, are going through digital transformation, and it is also emerging in other sectors such as healthcare and education.

Digital Era: The business and technology landscapes have been evolving very fast, and organisations are required to adopt new technologies to meet their business needs. All past three industry revolutions impacted social changes. However, the fourth industrial revolution builds on the computer revolution era and allows innovative ideas to spread faster than ever using constantly emerging technologies (Schwab 2017). Digital era refers to the fourth industrial revolution also known as Industry 4.0 where organisations use new technologies such as artificial intelligence, robotics, internet of things, autonomous vehicles, 3D printing, nanotechnology, biotechnology, distributed ledger technology and quantum computing to get a competitive advantage over others (Kostić 2018; Schwab 2017). Use of technologies have introduced new challenges for organisations as a transformation of business operations is required to manage new technologies effectively. Such changes to business operation include impacts to operating models, business processes and change management. To keep up with technology changes, organisations need to transform by continuously changing their value creation, structure and financial model (Matt et al., 2015).

Public-sector Organisations: Public-sector organisations are organisations that are established by governments or legislations. Such organisations tend to focus on aspects such as policy, institutional legitimacy, power, and social-economic benefits (Weerakkody et al. 2016). Governments and their agencies are under pressure from international agencies to transform in order to meet their obligations. As an example, research by Janowski (2016) shows that to meet the majority of the objectives of the United Nation's Sustainable Development Agenda for 2030, governments need to have the highest level of maturity in their digital capacity. A subset of public sector organisations is public sector financial services organisations which tend to have a mix of

public services, as well as financial services characteristics most of which focus on business to business services which ultimately serve the public.

Abstract

The days of extensive and one-off business transformations are long gone, and organisations find themselves in need for a continuous technology-enabled transformation to create competitive advantage in a disruptive environment caused by changes to regulations, politics, market dynamics, competition, technologies and more recently global economic, environmental and health crisis. The continuous disruption has pressured Public Sector Organisations (PSOs) to become nimble to respond so they can "retain their legitimacy by meeting their obligations to citizens, central governments, and laws" (Faro, Abedin & Kozanoglu 2019). However, a continuous transformation requires a co-existence of nimbleness with resilience. This research examines how PSOs become nimbler while retaining their stability and adaptiveness during a continuous digital transformation. Drawing on Fountain's (2001) Technology Enactment Framework (TEF), this research poses that organisational form is a critical element in the enactment of technologies in continuous digital transformation. However, by extending the framework, this research claims that organisations are not in pure bureaucratic or network organisational form during continuous digital transformation; instead, they need a hybrid combination that creates collaborative forms in order to support competing strategic needs for nimbleness and resilience. This research proposes an extension to TEF as a theoretical and analytical approach to understanding how collaborative organisational forms support competing strategic needs for a continuous digital transformation in the public sector financial services organisations. In addition, a contribution of this research relates to the capabilities required for PSOs to facilitate the co-existence of nimbleness and stability in a continuous digital transformation. Using insights from dynamic capabilities theory, this research highlights the need for organisations to go beyond traditional dynamic capabilities by incorporating dynamic Information Technology (IT) capabilities in order to support hybrid organisational forms in a continuous digital transformation. This study combines insights from Action Design Research (ADR) method involving practitioners with executives and senior management roles in a major Financial Services Organisation in Australia (FSO), in-depth interviews with financial services industry experts around the world, and, TEF and dynamic capability theory to build a model that guides PSOs in supporting co-existence of nimbleness and resilience in a continuous digital transformation. This research also contributes to the literature by providing a unique method of conducting ADR in pre-digital PSOs.